



PATENT

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~~Joanne Bourguignon~~

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Joseph H. Steinmetz et al.
Application No. : 10/602,529
Filed : June 23, 2003
For : Integrated-Circuit Implementation of a Storage-Shelf Router for use in
High-Availability Mass-Storage-Device Shelves that may be
Incorporated within Disk Arrays
Examiner : Kim Ngoc Huynh
Art Unit : 2182
Docket No. : 35022.001C1
Date : November 13, 2006

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RESPONSE TO RESTRICTION REQUIREMENT

Sir:

In response to the Restriction Requirement dated September 11, 2006, please extend the time to reply one-month, from October 11, 2006 to November 11, 2006. The Petition for Extension of Time and requisite fee is enclosed. Applicants hereby elect, with traverse, Group I, claims 1-29, for examination at this time.

In a short phone interview with the Examiner, on October 4, 2006, the Examiner explained that he would withdraw the previous rejections, with regard to which Applicants filed an Appeal Brief on November 14, 2005. Therefore, Applicants are responding to the restriction requirement, and anticipate a subsequent Office Action.

Claim 1 claims a storage shelf that contains a storage shelf router that, in turn, includes: a first communications-medium port, a second communications-medium port, one or more processors, a number of disk-drive-link-port components, a number of path controller cards, and "routing logic for routing commands received through the first and second communications-medium ports to the one or more processors and for routing data received

through the two or more communications-medium ports to the number of data-storage-device-link-port components." Claim 30 claims a routing logic component within a storage shelf router that determines to where a message is directed and that accordingly routes the message. The details of determining to where a message is directed and of accordingly routing the messages recited in claim 30, and claims that depend from claim 30, are also recited in claims 16-27 that depend from claim 1. The subject matter to which claims 30-39 are directed is also included in claims 1-29. There is no possible way that a search conducted for claims 30-43 would not overlap a search conducted for claims 1-29. Moreover, according to MPEP § 803:

If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.

As further stated the MPEP § 803:

There are two criteria for a proper requirement for restriction between patentably distinct inventions:

- (A) The inventions must be independent; and
- (B) There must be a serious burden on the examiner if restriction is required.
(references to other MPEP sections omitted)

It would be a far more serious burden to redundantly search two entirely related sets of claims than to conduct a single search for the overlapping subject matter. No reasonable interpretation of MPEP § 803 would justify a restriction requirement in the current application.

Applicants respectfully submit that the Examiner's justifications for the restriction requirement make no sense. A storage-shelf router without routing logic would be useless. The language that the Examiner claims to represent a subcombination refers to the ability of a path-controller card to accept data and commands from either a first storage-shelf-router integrated circuit or a last storage-shelf-router integrated circuit. Lacking this ability, one of the two recited storage-shelf-router integrated circuits would be unable to communicate with the storage device to which the path-controller card interfaces. This would, in turn, make one of the two storage-shelf-router integrated circuits useless. The point of using two or more storage-shelf-router integrated circuits is that, when certain failures occur that prevent one storage-shelf-router integrated circuit from accessing a storage device, the other or others of the storage-shelf-router integrated circuits within a storage shelf can take over control of the storage device. Such fault-tolerance is inherent in the storage shelf,

the storage-shelf integrated circuit, the routing logic component of the storage-shelf integrated circuit, and, at least in part, the path-controller cards.

The Examiner's argument that the storage-shelf-router integrated circuit of claims 9-29 is a separate subcombination from the routing logic component within a storage shelf router claimed in claims 30-43 makes even less sense. The routing logic component within a storage shelf router is a fundamental component of storage-shelf-router integrated circuit implementation. Without the routing logic component, a storage-shelf-router integrated circuit would be inoperable. The language cited by the examiner is fundamental to routing logic used within a storage-shelf router. Furthermore, the language cited from claim 30 can also be found in claims that depend from claim 1. For example, routing based on a determination of the destination of the message is mentioned in claim 16, which includes mention of routing to remote external devices and to processors within the storage-shelf router. Routing based on a determination of the destination of the message is additionally recited in claims 18, 20, 21, 22, and 25-27.

Claims 30-43 are specifically directed to the routing logic component within a storage-shelf router, the routing logic component claimed also in independent claims 1 and 9. There is no basis for a restriction requirement in the case of the current application. Without the routing logic component, a storage shelf and storage-shelf router would be inoperable. Applicants' representative can think of no utility for a storage-shelf routing logic component apart from use in a storage shelf.

Respectfully submitted,
Joseph H. Steinmetz et al.

OLYMPIC PATENT WORKS PLLC



Robert W. Bergstrom
Registration No. 39,906

Enclosure:

Postcard
Check
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Olympic Patent Works PLLC
P.O. Box 4277
Seattle, WA 98194-0277
206.621.1933 telephone
206.621.5302 fax